

Connecting via Winsock to STN

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PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

| | | | |
|------|---------|--------|--|
| NEWS | 1 | | Web Page URLs for STN Seminar Schedule - N. America |
| NEWS | 2 | Apr 08 | "Ask CAS" for self-help around the clock |
| NEWS | 3 | Apr 09 | BEILSTEIN: Reload and Implementation of a New Subject Area |
| NEWS | 4 | Apr 09 | ZDB will be removed from STN |
| NEWS | 5 | Apr 19 | US Patent Applications available in IFICDB, IFIPAT, and IFIUDB |
| NEWS | 6 | Apr 22 | Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS |
| NEWS | 7 | Apr 22 | BIOSIS Gene Names now available in TOXCENTER |
| NEWS | 8 | Apr 22 | Federal Research in Progress (FEDRIP) now available |
| NEWS | 9 | Jun 03 | New e-mail delivery for search results now available |
| NEWS | 10 | Jun 10 | MEDLINE Reload |
| NEWS | 11 | Jun 10 | PCTFULL has been reloaded |
| NEWS | 12 | Jul 02 | FOREGE no longer contains STANDARDS file segment |
| NEWS | 13 | Jul 22 | USAN to be reloaded July 28, 2002; saved answer sets no longer valid |
| NEWS | 14 | Jul 29 | Enhanced polymer searching in REGISTRY |
| NEWS | 15 | Jul 30 | NETFIRST to be removed from STN |
| NEWS | 16 | Aug 08 | CANCERLIT reload |
| NEWS | 17 | Aug 08 | PHARMAMarketLetter(PHARMAML) - new on STN |
| NEWS | 18 | Aug 08 | NTIS has been reloaded and enhanced |
| NEWS | 19 | Aug 19 | Aquatic Toxicity Information Retrieval (AQUIRE) now available on STN |
| NEWS | 20 | Aug 19 | IFIPAT, IFICDB, and IFIUDB have been reloaded |
| NEWS | 21 | Aug 19 | The MEDLINE file segment of TOXCENTER has been reloaded |
| NEWS | 22 | Aug 26 | Sequence searching in REGISTRY enhanced |
| NEWS | 23 | Sep 03 | JAPIO has been reloaded and enhanced |
| NEWS | EXPRESS | | February 1 CURRENT WINDOWS VERSION IS V6.0d, CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP), AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002 |
| NEWS | HOURS | | STN Operating Hours Plus Help Desk Availability |
| NEWS | INTER | | General Internet Information |
| NEWS | LOGIN | | Welcome Banner and News Items |
| NEWS | PHONE | | Direct Dial and Telecommunication Network Access to STN |
| NEWS | WWW | | CAS World Wide Web Site (general information) |

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 12:34:07 ON 11 SEP 2002

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 12:34:29 ON 11 SEP 2002

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STRUCTURE FILE UPDATES: 10 SEP 2002 HIGHEST RN 449140-76-5

DICTIONARY FILE UPDATES: 10 SEP 2002 HIGHEST RN 449140-76-5

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES
for more information. See STNnote 27, Searching Properties in the CAS
Registry File, for complete details:

<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> e ethyl acetate/cn

E1 1 ETHYL ACETAMIDOACETATE/CN

E2 1 ETHYL ACETAMIDOCYANOACETATE/CN

E3 1 --> ETHYL ACETATE/CN

E4 1 ETHYL ACETATE COMPD. WITH

1-DIPHENYLMETHYLENE-4-TRIPHENYLMET

HYL-2,5-CYCLOHEXADIENE (1:1)/CN

E5 1 ETHYL ACETATE CONJUGATE ACID/CN

E6 1 ETHYL ACETATE CONJUGATE MONOACID/CN

E7 1 ETHYL ACETATE ENOLATE/CN

E8 1 ETHYL ACETATE LITHIUM SALT/CN

E9 1 ETHYL ACETATE OXIME DIETHYL PHOSPHITE/CN

E10 1 ETHYL ACETATE RADICAL ANION/CN

E11 1 ETHYL ACETATE RADICAL CATION/CN

E12 1 ETHYL ACETATE, ((P-CHLOROPHENYL) SULFONYL) METHYLHYDRAZONE/CN

=> e3

L1 1 "ETHYL ACETATE"/CN

=> d 11

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 141-78-6 REGISTRY

CN Acetic acid ethyl ester (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Acetic acid, ethyl ester
 CN Acetic ether
 CN Acetidin
 CN Acetoxyethane
 CN **Ethyl acetate**
 CN Ethyl ethanoate
 CN EtOAc
 CN Vinegar naphtha
 FS 3D CONCORD
 MF C4 H8 O2
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
 CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM*,
 DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,
 GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
 MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO,
 SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

Et-O-Ac

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

18715 REFERENCES IN FILE CA (1967 TO DATE)
 101 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 18747 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> e thylen/cn

E1 1 THYLAKOID-BOUND ASCORBATE PEROXIDASE; 28209-30567
 (ARABIDOPS
 IS THALIANA CLONE T5M16 GENE T5M16.8)/CN
 E2 1 THYLATE/CN
 E3 0 --> THYLEN/CN
 E4 2 THYLIN/CN
 E5 1 THYLOGEN/CN
 E6 1 THYLOGEN MALEATE/CN
 E7 1 THYLOKAY/CN
 E8 1 THYLON D 406/CN
 E9 1 THYLOQUINONE/CN
 E10 1 THYLOSE/CN
 E11 1 THYMALFASIN/CN
 E12 1 THYMALIN/CN

=> e ethylen/cn

E1 1 ETHYLDRENE SENNOSIDE A/CN
 E2 1 ETHYLDURENE/CN
 E3 0 --> ETHYLEN/CN
 E4 1 ETHYLEN-D4-IMINE/CN
 E5 1 ETHYLENAMINE/CN
 E6 1 ETHYLENE/CN
 E7 1 ETHYLENE (.CH2CH2.), TRIBROMO-/CN
 E8 1 ETHYLENE (13CCH4)/CN

E9 1 ETHYLENE (2,2,6,6-TETRAMETHYL-4-PIPERIDINYLIDENE) ACETATE/CN
 E10 1 ETHYLENE
 (2-(4,6-DIAMINO-S-TRIAZIN-2-YL)ETHYL) PHOSPHONATE/CN
 E11 1 ETHYLENE (ALLYL CARBONATE) POLYMER/CN
 E12 1 ETHYLENE (FREE RADICAL),
 1,2-BIS(4-BIPHENYLYL)-1,2-DISTYRYL-
 /CN

=> e ethylene/cn

E1 1 ETHYLENE-D4-IMINE/CN
 E2 1 ETHYLENAMINE/CN
 E3 1 --> ETHYLENE/CN
 E4 1 ETHYLENE (.CH2CH2.), TRIBROMO-/CN
 E5 1 ETHYLENE (13CCH4)/CN
 E6 1 ETHYLENE (2,2,6,6-TETRAMETHYL-4-PIPERIDINYLIDENE) ACETATE/CN
 E7 1 ETHYLENE
 (2-(4,6-DIAMINO-S-TRIAZIN-2-YL)ETHYL) PHOSPHONATE/CN
 E8 1 ETHYLENE (ALLYL CARBONATE) POLYMER/CN
 E9 1 ETHYLENE (FREE RADICAL),
 1,2-BIS(4-BIPHENYLYL)-1,2-DISTYRYL-
 /CN
 E10 1 ETHYLENE .GAMMA., .GAMMA.-BIS(TERT-BUTYLPEROXY) VALERATE/CN
 E11 1 ETHYLENE 1,2,2,6,6-PENTAMETHYL-4-PIPERIDINE ACETATE/CN
 E12 1 ETHYLENE 1,2-BIS(TOSYLATE)/CN

=> e3

L2 1 ETHYLENE/CN

=> d l2

L2 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS

RN 74-85-1 REGISTRY

CN Ethene (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN **Ethylene (8CI)**

OTHER NAMES:

CN Acetene

CN Bicarburretted hydrogen

CN Elayl

CN Olefiant gas

FS 3D CONCORD

DR 87701-64-2, 87701-65-3, 33060-30-9

MF C2 H4

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS,
 BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
 CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB,

DETERM*,

DIogenes, DIPPR*, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2,
 GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
 MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO,
 TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

H₂C=CH₂

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

64796 REFERENCES IN FILE CA (1967 TO DATE)
10866 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
64898 REFERENCES IN FILE CAPLUS (1967 TO DATE)
22 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> file caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

11.92

12.13

FILE 'CAPLUS' ENTERED AT 12:35:48 ON 11 SEP 2002

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FILE COVERS 1907 - 11 Sep 2002 VOL 137 ISS 11

FILE LAST UPDATED: 10 Sep 2002 (20020910/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> 11

L3 18751 L1

=> 12

L4 64944 L2

=> 13 and 14

L5 414 L3 AND L4

=> heteropolyacid

977 HETEROPOLYACID

736 HETEROPOLYACIDS

L6 1429 HETEROPOLYACID

(HETEROPOLYACID OR HETEROPOLYACIDS)

=> 15 and 16

L7 7 L5 AND L6

=> d 17 1-7 ti

L7 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Research and development on esterification technology for acetic acid
with ethylene to prepare ethyl acetate

L7 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Characteristics and catalytic activities of 12-molybdophosphoric acid
modified by ring opening polymerization of tetrahydrofuran

L7 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Process and **heteropolyacid** catalysts for the preparation of
esters from alkenes and carboxylic acids

L7 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Recovery of catalyst components from **heteropolyacid** salt
catalysts used in addition of ethylene with acetic acid

L7 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Preparation of carboxylate esters

L7 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Simultaneous preparation of ethyl acetate and ethyl alcohol

L7 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Ethyl esters of aliphatic carboxylic acids

=> d 17 7 ti fbib ab

L7 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2002 ACS
TI Ethyl esters of aliphatic carboxylic acids
AN 1979:574834 CAPLUS
DN 91:174834
TI Ethyl esters of aliphatic carboxylic acids
IN Izumi, Yusuke; Maekawa, Junji; Suzuki, Katsumi
PA Tokuyama Soda Co., Ltd., Japan
SO Ger. Offen., 29 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| | ----- | ---- | ----- | ----- | ----- |
| PI | DE 2842265 | A1 | 19790405 | DE 1978-2842265 | 19780928 |
| | | | | JP 1977-115540 | 19770928 |
| | JP 54052025 | A2 | 19790424 | JP 1977-115540 | 19770928 |
| | JP 56030334 | B4 | 19810714 | | |
| | US 4205182 | A | 19800527 | US 1978-945666 | 19780925 |
| | | | | JP 1977-115540 | 19770928 |
| | GB 2005679 | A | 19790425 | GB 1978-38352 | 19780927 |
| | GB 2005679 | B2 | 19820127 | | |
| | | | | JP 1977-115540 | 19770928 |
| | CA 1128544 | A1 | 19820727 | CA 1978-312172 | 19780927 |
| | | | | JP 1977-115540 | 19770928 |
| | FR 2404621 | A1 | 19790427 | FR 1978-27754 | 19780928 |
| | FR 2404621 | B1 | 19800704 | | |

JP 1977-115540 19770928

AB Et alkanoates were prepd. by liq. phase esterification of aliph. carboxylic acids with CH₂:CH₂ over a **heteropolyacid** of W or acidic metal salt thereof in the presence of .ltoreq.7% H₂O. Thus, passing CH₂:CH₂ into AcOH contg. H₄(SiW₁₂O₄₀) and 1.8% H₂O 3 h at 210.degree. gave 38.5% EtOAc, 0.07% AcO-, and 0.06% AcOCHMeEt, with 38.6% yield of EtOAc with 99.2% selectivity.

=> d 17 1,3-6 ti fbib ab

L7 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2002 ACS

TI Research and development on esterification technology for acetic acid with

ethylene to prepare ethyl acetate

AN 1999:634057 CAPLUS

DN 131:338546

TI Research and development on esterification technology for acetic acid with

ethylene to prepare ethyl acetate

AU Zhu, Ji-fang; Liao, Shi-jun; Chen, Huan-qing; Mei, Ci-yun

CS Dep. Appl. Chem., South China Univ. Technol., Canton, 510641, Peop. Rep. China

SO Huaxue Fanying Gongcheng Yu Gongyi (1999), 15(3), 314-321

CODEN: HFGGEU; ISSN: 1001-7631

PB Zhejiangsheng Chubun Duiwai Maoyi Gongsi

DT Journal; General Review

LA Chinese

AB A review with 25 refs. The advances in esterification of acetic acid with

ethylene to prep. Et acetate, including the catalyst and kinetics researches were described. Among the catalysts developed, the heteropoly compd. catalyst holds some promise in use of practical applications.

L7 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2002 ACS

TI Process and **heteropolyacid** catalysts for the preparation of esters from alkenes and carboxylic acids

AN 1997:192121 CAPLUS

DN 126:185811

TI Process and **heteropolyacid** catalysts for the preparation of esters from alkenes and carboxylic acids

IN Atkins, Martin Philip; Sharma, Bhushan

PA Bp Chemicals Limited, UK

SO Eur. Pat. Appl., 23 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---------------------------|-------|----------|-----------------|------------|
| | ----- | ----- | ----- | ----- | ----- |
| PI | EP 757027 | A1 | 19970205 | EP 1996-305369 | 19960722 |
| | EP 757027 | B1 | 20000405 | | |
| | R: BE, DE, FR, GB, NL, SE | | | | |
| | | | | GB 1995-15813 | A 19950802 |
| | | | | GB 1996-3770 | A 19960222 |
| | | | | GB 1996-13227 | A 19960625 |
| | EP 959064 | A1 | 19991124 | EP 1999-113642 | 19960722 |
| | EP 959064 | B1 | 20011212 | | |
| | R: BE, DE, FR, GB, NL, SE | | | | |

| | | | | | |
|-------------|----|----------|-----------------|----|----------|
| | | | GB 1995-15813 | A | 19950802 |
| | | | GB 1996-3770 | A | 19960222 |
| | | | GB 1996-13227 | A | 19960625 |
| | | | EP 1996-305369 | A3 | 19960722 |
| US 5861530 | A | 19990119 | US 1996-687811 | | 19960726 |
| | | | GB 1995-15813 | A | 19950802 |
| | | | GB 1996-3770 | A | 19960222 |
| | | | GB 1996-13227 | A | 19960625 |
| CA 2182558 | AA | 19970203 | CA 1996-2182558 | | 19960801 |
| | | | GB 1995-15813 | A | 19950802 |
| | | | GB 1996-3770 | A | 19960222 |
| | | | GB 1996-13227 | A | 19960625 |
| JP 09118647 | A2 | 19970506 | JP 1996-203974 | | 19960801 |
| | | | GB 1995-15813 | A | 19950802 |
| | | | GB 1996-3770 | A | 19960222 |
| | | | GB 1996-13227 | A | 19960625 |
| CN 1150585 | A | 19970528 | CN 1996-112172 | | 19960802 |
| CN 1085197 | B | 20020522 | | | |

GB 1995-15813 A 19950802
 GB 1996-3770 A 19960222
 GB 1996-13227 A 19960625

AB Lower aliph. esters (e.g., EtO₂CCH₃) are prepd. by reacting a lower olefin (e.g., H₂C:CH₂) with a satd. lower aliph. monocarboxylic acid (e.g., AcOH)

in the vapor phase in the presence of a **heteropolyacid** catalyst, characterized in that an amt. of water in the range from 1-10 mol% (based on the total of olefin, aliph. monocarboxylic acid and water) is added to the reaction mixt. during the reaction. The presence of water enhances the ester yield. The reaction mixt. may optionally contain a diether (e.g., EtOEt) to minimize byproduct formation.

L7 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2002 ACS

TI Recovery of catalyst components from **heteropolyacid** salt catalysts used in addition of ethylene with acetic acid

AN 1995:874900 CAPLUS

DN 123:260391

TI Recovery of catalyst components from **heteropolyacid** salt catalysts used in addition of ethylene with acetic acid

IN Sato, Sadayoshi; Suzuki, Masaro; Ito, Takeo; Sano, Kenichi; Myahara, Kuniaki

PA Nippon Muki Kagaku Kogyo Kk, Japan; Showa Denko Kk

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| | ----- | --- | ----- | ----- | ----- |
| PI | JP 07213922 | A2 | 19950815 | JP 1994-14438 | 19940208 |
| AB | The process comprises (a) adding NaOH to a used heteropolyacid salt catalyst AmH _{8-n-m} (XM ₁₂ O ₄₀) (A = Cs, Rb, Tl, K; X = P, Si; M = W, Mo; n = 5 when X = P; n = 4 when X = Si; M = 1-3 when X = P and 1-4 when X = Si), decompn. by heating, contacting with Na-type strongly acidic ion exchanger to selectively sep. Cs, Rb, Tl, or K; (b) eluting the sepd. Cs, Rb, Tl, or K with H ₂ SO ₄ (.gtoreq.0.5 M); and (c) treating the sepd. heteropoly acid Na salt with H-type strongly acidic ion exchanger to recover the heteropolyacid . | | | | |

L7 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2002 ACS

TI Preparation of carboxylate esters

AN 1994:579103 CAPLUS

DN 121:179103

TI Preparation of carboxylate esters

IN Nagamura, Hiroo; Yagi, Hirobumi; Morita, Takehiko; Sugimura, Toshiro

PA Nippon Catalytic Chem Ind, Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 06072951 | A2 | 19940315 | JP 1993-76705 | 19930402 |
| | | | | JP 1992-180824 | 19920708 |

AB The title compds. are prepd. by gas-phase treating carboxylic acids with olefins in the presence of O and acid salts of heteropoly acids. A reactor contg. H0.5Cs2.5PW12O40 (prepn. given) was fed with a 1:13:0.02 mixed gases of acrylic acid, CH2:CH2, and O at 150.degree. and atm. for 3 h to give 49.7% Et acrylate.

L7 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2002 ACS

TI Simultaneous preparation of ethyl acetate and ethyl alcohol

AN 1994:507999 CAPLUS

DN 121:107999

TI Simultaneous preparation of ethyl acetate and ethyl alcohol

IN Nishama, Masaaki; Myahara, Kuniaki; Sano, Kenichi

PA Showa Denko Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 06009454 | A2 | 19940118 | JP 1992-164920 | 19920623 |
| | JP 3147500 | B2 | 20010319 | | |

OS CASREACT 121:107999

AB Et acetate and EtOH are simultaneously prepd. by gas-phase treating CH2:CH2, AcOH, and 10-75% H2O to the total amt. of AcOH and H2O using heteropoly acid salts in which 0.05-2.9 g atom/heteropoly acid mol H is substituted by .gtoreq.1 group IA and IB element, Ca, Sr, Ba, Al, Ga, Tl, NH4 group. A reactor contg. phosphotungstate Cs catalysts (prepn. given) was fed with 16 NL/h CH2:CH2 and 4.7 g/h 54.4% H2O-contg. AcOH at 180.degree. and 5 kg/cm2G for 1 h to give 1.75 g Et acetate and 0.49 g EtOH.

=> logoff hold

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

20.91

33.04

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

-3.72

-3.72

SESSION WILL BE HELD FOR 60 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 12:41:06 ON 11 SEP 2002

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:sssptal623paz

PASSWORD:

* * * * * RECONNECTED TO STN INTERNATIONAL * * * * *
SESSION RESUMED IN FILE 'CAPLUS' AT 12:41:30 ON 11 SEP 2002
FILE 'CAPLUS' ENTERED AT 12:41:30 ON 11 SEP 2002
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| FULL ESTIMATED COST | 20.91 | 33.04 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -3.72 | -3.72 |

=> d his

(FILE 'HOME' ENTERED AT 12:34:07 ON 11 SEP 2002)

FILE 'REGISTRY' ENTERED AT 12:34:29 ON 11 SEP 2002

 E ETHYL ACETATE/CN
L1 1 E3
 E THYLEN/CN
 E ETHYLEN/CN
 E ETHYLENE/CN
L2 1 E3

FILE 'CAPLUS' ENTERED AT 12:35:48 ON 11 SEP 2002

L3 18751 L1
L4 64944 L2
L5 414 L3 AND L4
L6 1429 HETEROPOLYACID
L7 7 L5 AND L6

=> l2 and l6

 64944 L2
L8 46 L2 AND L6

=> catalyst deactiv?

 597160 CATALYST
 560790 CATALYSTS
 752637 CATALYST
 (CATALYST OR CATALYSTS)
 33348 DEACTIV?
L9 4606 CATALYST DEACTIV?
 (CATALYST(W) DEACTIV?)

=> l8 and l9

L10 0 L8 AND L9

=> 16 and 19

L11 8 L6 AND L9

=> d l11 1-8 ti

L11 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Molybdenum nitride and carbide prepared from **heteropolyacid**.
III. Hydrodesulfurization of benzothiophene

L11 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Manufacture of polyacetal copolymers with improved thermal stability in high yield

L11 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Producing glycidyl acrylate or glycidyl methacrylate

L11 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Hydrodesulfurization of thiophene on supported phosphormolybdenum **heteropolyacid**: Study of deactivation

L11 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Deactivation of **heteropolyacid** catalysts

L11 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Mechanistically founded modeling of deactivation behavior of heteropolycatalysts in the oxydehydrogenation of isobutyric acid

L11 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Oxydehydrogenation of isobutyric acid with heteropoly acid catalysts: experimental observations of deactivation

L11 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Activity and stability of a copper(II) oxide-zinc(II) oxide catalyst for oxidative dehydrogenation of cyclohexanol to cyclohexanone

=> d l11 4-8 ti fbib abs

L11 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Hydrodesulfurization of thiophene on supported phosphormolybdenum **heteropolyacid**: Study of deactivation

AN 1995:672142 CAPLUS

DN 123:148462

TI Hydrodesulfurization of thiophene on supported phosphormolybdenum **heteropolyacid**: Study of deactivation

AU Spojakina, A.; Kostova, N.

CS Institute Kinetics and Catalysis, Bulgarian Academy Sciences, Sofia, 1113, Bulg.

SO Studies in Surface Science and Catalysis (1994), 88(Catalyst Deactivation 1994), 651-6

CODEN: SSCTDM; ISSN: 0167-2991

PB Elsevier

DT Journal

LA English

AB In this paper factors controlling the catalytic activity in the hydrodesulfurization reaction (HDS) are discussed. The SiO₂-supported phosphormolybdenum **heteropolyacid** (HPMo) is used as a model catalyst. Two types of the **catalyst deactivation** have been shown. The reversible deactivation effect is related with changes

in

the molybdenum valence, its O- and O,S-surrounding and adsorption of the S-contg. reaction products. The HDS activity is irreversibly changed when the transformation of the catalyst phase compn. is carried out.

L11 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Deactivation of **heteropolyacid** catalysts

AN 1991:680605 CAPLUS

DN 115:280605

TI Deactivation of **heteropolyacid** catalysts

AU Watzenberger, O.; Haeberle, T.; Lynch, D. T.; Emig, G.

CS Inst. Tech. Chem. I, Univ. Erlangen-Nuernberg, Erlangen, D-8520, Fed.

Rep.

Ger.

SO Stud. Surf. Sci. Catal. (1991), 68(Catal. Deact. 1991), 441-8

CODEN: SSCTDM; ISSN: 0167-2991

DT Journal

LA English

AB For the oxydehydrogenation of isobutyric acid to methacrylic acid on **heteropolyacid** catalysts in the absence of water in the gas phase, an initial, exponential decrease in the product formation due to the adsorption of org. components was found. This short term deactivation

can

simply be avoided by adding water into the gas phase. The linear, long term deactivation is due to the formation of volatile Mo species. In the presence of water, the Mo loss proceeds much slower but cannot be avoided totally. When the gas phase is satd. with this volatile Mo species, the Mo content of the catalyst remains const. and the **heteropolyacid** is stabilized.

L11 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Mechanistically founded modeling of deactivation behavior of heteropolycatalysts in the oxydehydrogenation of isobutyric acid

AN 1991:491504 CAPLUS

DN 115:91504

TI Mechanistically founded modeling of deactivation behavior of heteropolycatalysts in the oxydehydrogenation of isobutyric acid

AU Watzenberger, O.; Lynch, D. T.; Emig, G.

CS Inst. Tech. Chem. I, Univ. Erlangen-Nuernberg, Erlangen, Fed. Rep. Ger.

SO DECHEMA Monogr. (1991), 122(Katalyse), 317-32

CODEN: DMDGAG; ISSN: 0070-315X

DT Journal

LA German

AB **Heteropolyacids** catalyze the oxidative dehydrogenation of isobutyric acid to yield methacrylic acid. The initial pseudo-stationary deactivation of the catalyst was described using Mars-van Krevelen kinetics extended with a suitable adsorption term. This initial activity decrease is followed by an irreversible deactivation with loss of Mo from the catalyst. Both types of deactivation can be avoided by adding water to the feed gas.

L11 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Oxydehydrogenation of isobutyric acid with heteropoly acid catalysts: experimental observations of deactivation

AN 1990:459867 CAPLUS

DN 113:59867

TI Oxydehydrogenation of isobutyric acid with heteropoly acid catalysts: experimental observations of deactivation

AU Watzenberger, Otto; Emig, Gerhard; Lynch, David T.

CS Inst. Tech. Chem. I, Univ. Erlangen-Nuernberg, Erlangen, D-8520, Germany
SO J. Catal. (1990), 124(1), 247-58
CODEN: JCTLA5; ISSN: 0021-9517

DT Journal

LA English

AB The **heteropolyacid** catalysts H5Mo10V2PO40 and H6Mo9V3PO40 were used for producing methacrylic acid via the oxydehydrogenation of isobutyric acid (I). This reaction proceeded via a redox process involving lattice O from the Keggin structure of the catalyst mols. Changes in the oxidn. state of the catalyst produced a deactivation effect

which was reversible by fully reoxidizing the catalyst. An irreversible, long-term type of deactivation related to a loss of Mo from the catalyst was also obsd. This occurred through the formation of a volatile Mo-contg. gas-phase species. Passage of the I feed over a bed of MoO3 prior to entering the reactor eliminated both types of deactivation.

L11 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2002 ACS

TI Activity and stability of a copper(II) oxide-zinc(II) oxide catalyst for oxidative dehydrogenation of cyclohexanol to cyclohexanone

AN 1988:512405 CAPLUS

DN 109:112405

TI Activity and stability of a copper(II) oxide-zinc(II) oxide catalyst for oxidative dehydrogenation of cyclohexanol to cyclohexanone

AU Lin, Yu Ming; Wang, Ikai; Yeh, Chuin Tih

CS Dep. Chem. Eng., Natl. Tsing Hua Univ., Hsinchu, Taiwan

SO Appl. Catal. (1988), 41(1-2), 53-63

CODEN: APCADI; ISSN: 0166-9834

DT Journal

LA English

AB Oxidative dehydrogenation of cyclohexanol to cyclohexanone over a com. CuO-ZnO catalyst was studied in a fixed-bed microreactor. The catalyst maintained const. activity at low oxygen-cyclohexanol mol. ratios and its stability was dependent on the reaction temp. Both the activity and stability of the catalyst could be improved by using nitrous oxide

instead

of oxygen as the oxidant or by modifying the catalyst with palladium oxide

or **heteropolyacid** (K3PMo12O40.cntdot.H2O). Anal. of the deposit on the spent catalyst showed the existence of oligomers of cyclohexanone. The accumulation of these higher mol. wt. products on the catalyst was believed to be the major cause of the **catalyst deactivation**.

=> logoff hold

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

40.65

52.78

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

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-6.82

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PASSWORD:

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FILE 'CAPLUS' ENTERED AT 13:16:46 ON 11 SEP 2002
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| | | |
|--|------------|---------|
| COST IN U.S. DOLLARS | SINCE FILE | TOTAL |
| | ENTRY | SESSION |
| FULL ESTIMATED COST | 40.65 | 52.78 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE | TOTAL |
| | ENTRY | SESSION |
| CA SUBSCRIBER PRICE | -6.82 | -6.82 |

=> d his

(FILE 'HOME' ENTERED AT 12:34:07 ON 11 SEP 2002)

FILE 'REGISTRY' ENTERED AT 12:34:29 ON 11 SEP 2002

E ETHYL ACETATE/CN
L1 1 E3
E THYLEN/CN
E ETHYLEN/CN
E ETHYLENE/CN
L2 1 E3

FILE 'CAPLUS' ENTERED AT 12:35:48 ON 11 SEP 2002

L3 18751 L1
L4 64944 L2
L5 414 L3 AND L4
L6 1429 HETEROPOLYACID
L7 7 L5 AND L6
L8 46 L2 AND L6
L9 4606 CATALYST DEACTIV?
L10 0 L8 AND L9
L11 8 L6 AND L9

=> ?polyacid

L12 2228 ?POLYACID

=> l5 and l12

L13 7 L5 AND L12

=> l12 and l9

L14 11 L12 AND L9

=> l14 not l11

L15 3 L14 NOT L11

=> d l15 1-3 ti

L15 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI Manufacture of polyacetal copolymers with good thermal stability in high

yield

L15 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Manufacture of polyacetal copolymers using isopolyacids as catalysts

L15 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Manufacture of polyacetal copolymers using isopolyacids as catalysts

=> deactiv?

L16 33348 DEACTIV?

=> l12 and l16

L17 25 L12 AND L16

=> alkene or olefin

28908 ALKENE

71078 ALKENES

81249 ALKENE

(ALKENE OR ALKENES)

81510 OLEFIN

79505 OLEFINS

124963 OLEFIN

(OLEFIN OR OLEFINS)

L18 171213 ALKENE OR OLEFIN

=> l17 and l18

L19 3 L17 AND L18

=> d l19 1-3 ti

L19 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Porous 12-tungstophosphoric alkaline salts for isobutane/butene
alkylation: influence of protonic density and surface polarity of the
HPA:
Effects of the supercritical phase

L19 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Regeneration of **deactivated** solid **heteropolyacid**
catalysts

L19 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Reactivation of oxide catalysts

=> d l19 1-3 ti fbib abs

L19 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS
TI Porous 12-tungstophosphoric alkaline salts for isobutane/butene
alkylation: influence of protonic density and surface polarity of the
HPA:
Effects of the supercritical phase
AN 2000:566822 CAPLUS
DN 134:117451
TI Porous 12-tungstophosphoric alkaline salts for isobutane/butene
alkylation: influence of protonic density and surface polarity of the
HPA:
Effects of the supercritical phase
AU Gayraud, P. Y.; Essayem, N.; Vedrine, J. C.

CS Institut de Recherches sur la Catalyse, CNRS, Villeurbanne, F-69626, Fr.
SO Studies in Surface Science and Catalysis (2000), 130C(International
Congress on Catalysis, 2000, Pt. C), 2549-2554
CODEN: SSCTDM; ISSN: 0167-2991

PB Elsevier Science B.V.

DT Journal

LA English

AB The influence of the protonic d. and of the polarity of potassium salts
of

H3PW12O40 (a **heteropolyacid**, HPA) has been evaluated for
i-C4/C4= alkylation in dynamic conditions. An increase of the
deactivation rate was obsd. with increasing the protonic d. or
lowering the catalyst surface polarity. In supercrit. isobutane
conditions, in a batch reactor, more satd. C8 hydrocarbons and less
olefins were obtained, when increasing supercrit. fluid d. This
was attributed to an enhanced hydride transfer ability of the catalyst.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI Regeneration of **deactivated** solid **heteropolyacid**
catalysts

AN 1997:3028 CAPLUS

DN 126:37790

TI Regeneration of **deactivated** solid **heteropolyacid**
catalysts

IN Oogoshi, Shingo; Nomura, Mamoru

PA Idemitsu Kosan Co, Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| | ----- | --- | ----- | ----- | ----- |
| PI | JP 08281118 | A2 | 19961029 | JP 1995-83780 | 19950410 |

AB When solid **heteropolyacid** catalysts contg.

heteropolyacid salts, which are scarcely sol. in polar liq., are
used in acid catalyst reaction, e.g., reaction of C4-6 isoparaffins with
C3-5 monoolefins, and **deactivated**, the catalysts are regenerated
by washing with liq., e.g., H2O, C1-5 lower alcs., alkylene glycols,
C1-toreq.8 lower alkyl ethers, cyclic ethers, ketones, CS2, arom.
hydrocarbons, cyclic satd. hydrocarbons, C4-10 aliph. satd. hydrocarbons.
The catalysts are regenerated by retaining stability and suitable for
manuf. of alkylated gasoline, isomerization of n-paraffin, alkylation of
arom. compds., etc.

L19 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI Reactivation of oxide catalysts

AN 1969:454189 CAPLUS

DN 71:54189

TI Reactivation of oxide catalysts

IN Campbell, Warren E.

SO Def. Publ. U. S. Pat. Off. T, 6 pp.

From: Offic. Gaz. 1969, 864(3), 730.

CODEN: USXXBN

DT Patent

LA English

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|----------|-----------------|----------|
| PI | US 784946 | | 19690715 | US | 19681218 |

AB Catalytic activity of a metal-oxide catalyst, which has been **deactivated** by excessive heat treatment in the presence of an O-contg. gas, can be restored by heating the **deactivated** catalyst at high temp. with a reducing gas or gaseous mixt. More specifically the reactivation or preconditioning is directed to oxidn. and ammoxidn. catalysts used in the prepn. of acids, anhydrides, and nitriles from hydrocarbons such as propylene and p-xylene. In particular, the treated catalysts contain the oxides of Nb and Mo or the oxides of As, Nb, and Mo. The catalysts may be supported on silica. It is also expected that the above compns. in which Ta is used to replace niobium may be reactivated. The catalytic metals exist in an oxidation state above zero. Mo may be present in the form of a **heteropolyacid** such as ceri-12-molybdic acid. The gas used for the catalyst redn. may be any easily oxidizable material. For example, **olefins** and long chain n-hydrocarbons may be used. Propylene is the preferred reducing gas.

NH3 or H may also be employed as a reducing gas. The redn. treatment is carried out at 350.degree.-650.degree.. The catalyst may also be treated with As2O3.

=> logoff hod
'HOD' IS NOT VALID HERE
For an explanation, enter "HELP LOGOFF".

=> d his

(FILE 'HOME' ENTERED AT 12:34:07 ON 11 SEP 2002)

FILE 'REGISTRY' ENTERED AT 12:34:29 ON 11 SEP 2002

| | |
|----|--------------------|
| | E ETHYL ACETATE/CN |
| L1 | 1 E3 |
| | E THYLEN/CN |
| | E ETHYLEN/CN |
| | E ETHYLENE/CN |
| L2 | 1 E3 |

FILE 'CAPLUS' ENTERED AT 12:35:48 ON 11 SEP 2002

| | |
|-----|-------------------------|
| L3 | 18751 L1 |
| L4 | 64944 L2 |
| L5 | 414 L3 AND L4 |
| L6 | 1429 HETEROPOLYACID |
| L7 | 7 L5 AND L6 |
| L8 | 46 L2 AND L6 |
| L9 | 4606 CATALYST DEACTIV? |
| L10 | 0 L8 AND L9 |
| L11 | 8 L6 AND L9 |
| L12 | 2228 ?POLYACID |
| L13 | 7 L5 AND L12 |
| L14 | 11 L12 AND L9 |
| L15 | 3 L14 NOT L11 |
| L16 | 33348 DEACTIV? |
| L17 | 25 L12 AND L16 |
| L18 | 171213 ALKENE OR OLEFIN |

L19 3 L17 AND L18

=> save temp all estersynsrc/l
L# LIST L1-L19 HAS BEEN SAVED AS 'ESTERSYNSRC/L'

=> logoff hold

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 60.48 | 72.61 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| CA SUBSCRIBER PRICE | -8.67 | -8.67 |

SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 13:23:43 ON 11 SEP 2002

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PASSWORD:

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SESSION RESUMED IN FILE 'CAPLUS' AT 13:48:56 ON 11 SEP 2002
FILE 'CAPLUS' ENTERED AT 13:48:56 ON 11 SEP 2002
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| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
| FULL ESTIMATED COST | 60.48 | 72.61 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| CA SUBSCRIBER PRICE | -8.67 | -8.67 |

=> d his

(FILE 'HOME' ENTERED AT 12:34:07 ON 11 SEP 2002)

FILE 'REGISTRY' ENTERED AT 12:34:29 ON 11 SEP 2002
E ETHYL ACETATE/CN

L1 1 E3
E THYLEN/CN
E ETHYLEN/CN
E ETHYLENE/CN

L2 1 E3

FILE 'CAPLUS' ENTERED AT 12:35:48 ON 11 SEP 2002

L3 18751 L1
L4 64944 L2
L5 414 L3 AND L4
L6 1429 HETEROPOLYACID
L7 7 L5 AND L6
L8 46 L2 AND L6
L9 4606 CATALYST DEACTIV?

L10 0 L8 AND L9
 L11 8 L6 AND L9
 L12 2228 ?POLYACID
 L13 7 L5 AND L12
 L14 11 L12 AND L9
 L15 3 L14 NOT L11
 L16 33348 DEACTIV?
 L17 25 L12 AND L16
 L18 171213 ALKENE OR OLEFIN
 L19 3 L17 AND L18
 SAVE TEMP ALL ESTERSYN SRC/L

=> butene

 46534 BUTENE
 5501 BUTENES
 L20 48324 BUTENE
 (BUTENE OR BUTENES)

=> l12 and l20

L21 39 L12 AND L20

=> l21 and l16

L22 3 L21 AND L16

=> d l22 1-3 ti

L22 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS
 TI Porous 12-tungstophosphoric alkaline salts for isobutane/**butene**
 alkylation: influence of protonic density and surface polarity of the
 HPA:
 Effects of the supercritical phase

L22 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS
 TI Regeneration of **deactivated** solid **heteropolyacid**
 catalysts

L22 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
 TI High-pressure oligomerization of propene over heteropoly acids

=> d l22 3 ti fbib abs

L22 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS
 TI High-pressure oligomerization of propene over heteropoly acids
 AN 1994:436265 CAPLUS
 DN 121:36265
 TI High-pressure oligomerization of propene over heteropoly acids
 AU Vaughan, J. S.; O'Connor, C. T.; Fletcher, J. C. Q.
 CS Dep. Chem. Eng., Univ. Cape Town, Rondebosch, 7700, S. Afr.
 SO J. Catal. (1994), 147(2), 441-54
 CODEN: JCTLA5; ISSN: 0021-9517
 DT Journal
 LA English
 AB Ammonium, potassium, nickel, copper, cobalt, iron, cerium, and aluminum
 salts of 12-tungstophosphoric acid (HPW) as well as the ammonium and
 aluminum salts of 12-tungstosilicic acid were synthesized and
 characterized by TG-DTA, nitrogen adsorption, XRD, electron microscopy,
 ammonia temp. programmed desorption, and FTIR. Consistent with the
 findings of other **heteropolyacid** (HPA) characterization studies

the HPAs could be divided into two types: Type A, low surface area salts with multiple endothermic mass losses, and Type B, high surface area salts with a single endothermic mass loss. The surface acidity of some of these

catalysts was evaluated using butane cracking and **butene** isomerization as probe reactions. These indicated that the Type B salts had strong acid sites on the surface as they were capable of cracking butane and **butene**. The Type A salts were inactive for these reactions. The propene oligomerization activity of the HPW salts decreased in the order: Al .mchgt. Co > Ni, NiH, NH4 > H, Cu > Fe, Ce >

K.

Premature **deactivation** as a result of substantial film temp. gradients occurs due to the inability to dissipate the large heat of reaction in the undiluted catalyst bed. Dilg. the catalyst with acid-washed sand (1 part catalyst to 10 parts sand) dramatically increased

the liq. product yield and catalyst lifetime but the activity order remained the same as the pure powder form. The pure Al salt of HPW, viz. AlPW, was found to be the most active, achieving 90% conversion at a WHSV of 12 h-1, 230-240 .degree.C, and 5 MPa. The main product of propene oligomerization was the trimer. The sand-dild. AlPW catalyst achieved 100% conversion under identical conditions with no sign of **deactivation** after 150 h on stream. Pure AlPW yielded a catalyst utilization value (CUV) of 540 g.(liq. product)/g.catalyst with a distillate fraction cetane no. of 40. The CUV of the dild. AlPW catalyst was in excess of 1800 g.(liq. product)/g.catalyst. The relationship between the catalytic activity, surface area, and structure of the catalysts is discussed.

=> logoff hold

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

66.83

78.96

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

-9.29

-9.29

SESSION WILL BE HELD FOR 60 MINUTES

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PASSWORD:

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NEWS 3 Apr 09 BEILSTEIN: Reload and Implementation of a New Subject Area
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 IFIUDB
 NEWS 6 Apr 22 Records from IP.com available in CAPLUS, HCAPLUS, and
 ZCAPLUS
 NEWS 7 Apr 22 BIOSIS Gene Names now available in TOXCENTER
 NEWS 8 Apr 22 Federal Research in Progress (FEDRIP) now available
 NEWS 9 Jun 03 New e-mail delivery for search results now available
 NEWS 10 Jun 10 MEDLINE Reload
 NEWS 11 Jun 10 PCTFULL has been reloaded
 NEWS 12 Jul 02 FOREGE no longer contains STANDARDS file segment
 NEWS 13 Jul 22 USAN to be reloaded July 28, 2002;
 saved answer sets no longer valid
 NEWS 14 Jul 29 Enhanced polymer searching in REGISTRY
 NEWS 15 Jul 30 NETFIRST to be removed from STN
 NEWS 16 Aug 08 CANCERLIT reload
 NEWS 17 Aug 08 PHARMAMarketLetter(PHARMAML) - new on STN
 NEWS 18 Aug 08 NTIS has been reloaded and enhanced
 NEWS 19 Aug 19 Aquatic Toxicity Information Retrieval (AQUIRE)
 now available on STN
 NEWS 20 Aug 19 IFIPAT, IFICDB, and IFIUDB have been reloaded
 NEWS 21 Aug 19 The MEDLINE file segment of TOXCENTER has been reloaded
 NEWS 22 Aug 26 Sequence searching in REGISTRY enhanced
 NEWS 23 Sep 03 JAPIO has been reloaded and enhanced

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 AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002

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* * * * * STN Columbus * * * * *

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| | | |
|----------------------|------------|---------|
| => file reg | | |
| COST IN U.S. DOLLARS | SINCE FILE | TOTAL |
| | ENTRY | SESSION |
| FULL ESTIMATED COST | 0.21 | 0.21 |

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DICTIONARY FILE UPDATES: 10 SEP 2002 HIGHEST RN 449140-76-5

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conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES
for more information. See STNote 27, Searching Properties in the CAS
Registry File, for complete details:

<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> e silicotungstic acid/cn

| | | |
|-----|-------|---------------------------------------|
| E1 | 2 | SILICOTITANIUM/CN |
| E2 | 1 | SILICOTUNGSTATE/CN |
| E3 | 2 --> | SILICOTUNGSTIC ACID/CN |
| E4 | 1 | SILICOTUNGSTIC ACID (H4(SIW12O40))/CN |
| E5 | 1 | SILICOTUNGSTIC ACID (H4SIW12O40)/CN |
| E6 | 1 | SILICOTUNGSTIC ACID (H6SIW12O40)/CN |
| E7 | 1 | SILICOTUNGSTIC BLUE/CN |
| E8 | 1 | SILICOTUNGSTOMOLYBDIC ACID/CN |
| E9 | 1 | SILICOTUNGSTOVANADIC ACID/CN |
| E10 | 1 | SILICOVANADIUM/CN |
| E11 | 1 | SILICOVANADOMOLYBDIC ACID/CN |
| E12 | 1 | SILICOVIT ROT 30/CN |

=> e3

L1 2 "SILICOTUNGSTIC ACID"/CN

=> d l1 1-3

L1 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2002 ACS
RN 55957-17-0 REGISTRY
CN Silicic acid, tungsten salt (9CI) (CA INDEX NAME)
OTHER NAMES:
CN **Silicotungstic acid**
CN Tungsten silicate
MF Unspecified
CI COM, MAN
LC STN Files: AGRICOLA, CA, CAPLUS, CASREACT, CHEMLIST, PIRA, PROMT,
TOXCENTER, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

109 REFERENCES IN FILE CA (1967 TO DATE)

8 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

110 REFERENCES IN FILE CAPLUS (1967 TO DATE)

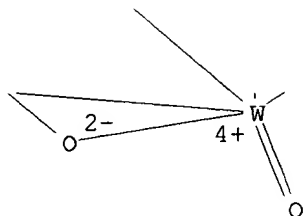
L1 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2002 ACS

RN 12027-38-2 REGISTRY

CN Tungstate(4-),

[.mu.12-[orthosilicato(4-)-.kappa.O:.kappa.O:.kappa.O:.kapp

a.O':.kappa.O':.kappa.O':.kappa.O'':.kappa.O'':.kappa.O'':.kappa.O'':.kap
pa.O'':.kappa.O'']]tetracosa-.mu.-oxododecaoxododeca-, tetrahydrogen



PAGE 3-A

● 4 H⁺

955 REFERENCES IN FILE CA (1967 TO DATE)
 38 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 957 REFERENCES IN FILE CAPLUS (1967 TO DATE)
 46 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> e tungstsilicic acid/cn

| | | |
|-----|-------|---|
| E1 | 1 | TUNGSTOZIRCONIC ACID (H2ZR2W2O11), HYDRATE/CN |
| E2 | 1 | TUNGSTOZIRCONIC ACID (H2ZR2W3O14), HYDRATE (2:5)/CN |
| E3 | 0 --> | TUNGSTSILICIC ACID/CN |
| E4 | 1 | TUNGSTYL DINITRATE/CN |
| E5 | 1 | TUNGSTYL ION(2+)/CN |
| E6 | 1 | TUNGTEC/CN |
| E7 | 1 | TUNGUM/CN |
| E8 | 1 | TUNGUSITE/CN |
| E9 | 1 | TUNGUSITE (CA4FE2H6(SI2O7)3)/CN |
| E10 | 1 | TUNIC/CN |
| E11 | 1 | TUNIC (PESTICIDE)/CN |
| E12 | 1 | TUNICAMINE/CN |

=> e tungstosilicic acid/cn

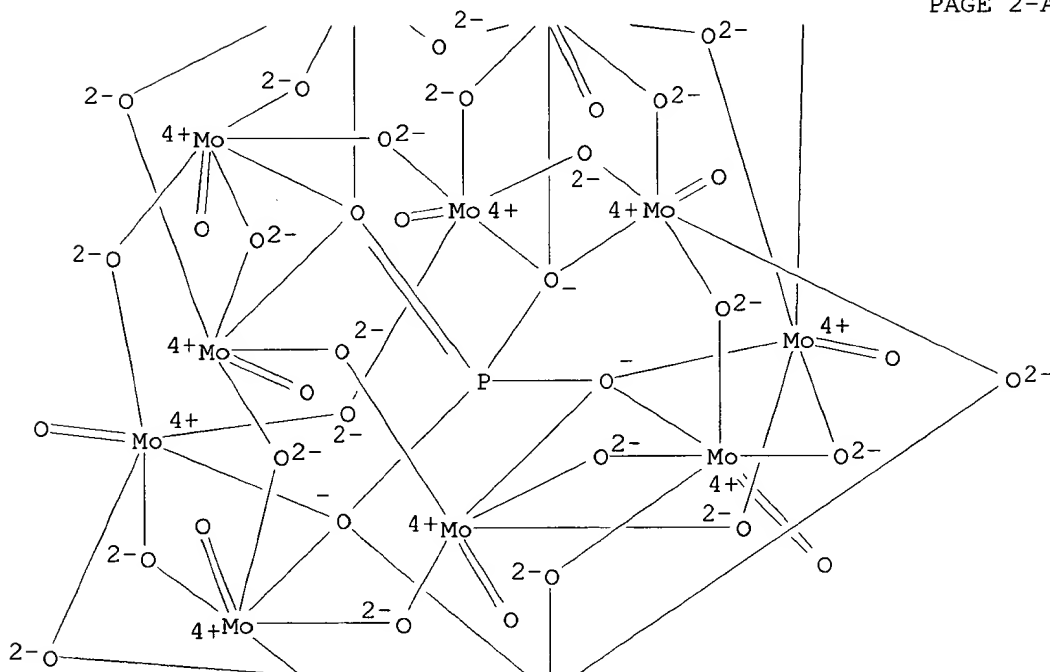
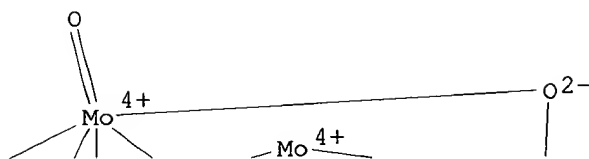
| | | |
|-----|-------|--|
| E1 | 1 | TUNGSTOSILICATE (SIW9O3410-)/CN |
| E2 | 1 | TUNGSTOSILICATEZINCATE (SIZNW11O408-), DIHYDROGEN/CN |
| E3 | 0 --> | TUNGSTOSILICIC ACID/CN |
| E4 | 1 | TUNGSTOSILICIC ACID (H10SIW11O40), IRON(3+) POTASSIUM SALT (1:1:6)/CN |
| E5 | 1 | TUNGSTOSILICIC ACID (H10SIW9O34), DECASODIUM SALT/CN |
| E6 | 1 | TUNGSTOSILICIC ACID (H10SIW9O34), DECASODIUM SALT, OCTADECAL YDRATE/CN |
| E7 | 1 | TUNGSTOSILICIC ACID (H10SIW9O34), NONASODIUM SALT, TRICOSAHY DRATE/CN |
| E8 | 1 | TUNGSTOSILICIC ACID (H16SIW12O46)/CN |
| E9 | 1 | TUNGSTOSILICIC ACID (H4SIW12O40)/CN |
| E10 | 1 | TUNGSTOSILICIC ACID (H4SIW12O40) HYDRATE (1:31)/CN |
| E11 | 1 | TUNGSTOSILICIC ACID (H4SIW12O40), ALUMINUM SALT/CN |
| E12 | 1 | TUNGSTOSILICIC ACID (H4SIW12O40), ALUMINUM SALT (1:1), OCTAC OSAHYDRATE/CN |

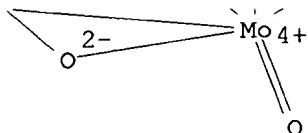
| | | |
|-----|-------|--|
| E1 | 1 | PHOSPHOMOLYBDATE/CN |
| E2 | 1 | PHOSPHOMOLYBDATE (PMO12O403-)/CN |
| E3 | 2 --> | PHOSPHOMOLYBDIC ACID/CN |
| E4 | 1 | PHOSPHOMOLYBDIC ACID (H3MO12O38P)/CN |
| E5 | 1 | PHOSPHOMOLYBDIC ACID (H3MO12PO40)/CN |
| E6 | 1 | PHOSPHOMOLYBDIC ACID (H3PMO10O34)/CN |
| E7 | 1 | PHOSPHOMOLYBDIC ACID (H3PMO12O39)/CN |
| E8 | 1 | PHOSPHOMOLYBDIC ACID (H3PMO12O40)/CN |
| E9 | 1 | PHOSPHOMOLYBDIC TUNGSTIC ACID COMPOUND/CN |
| E10 | 1 | PHOSPHOMOLYBDOTUNGSTIC ACID (H3PMO3W9O40)/CN |
| E11 | 1 | PHOSPHOMOLYBDOVANADIC ACID/CN |
| E12 | 1 | PHOSPHOMOLYBDOVANADIC ACID (H3MO10V2PO39)/CN |

L2 2 "PHOSPHOMOLYBDIC ACID"/CN

L2 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2002 ACS
RN 12026-57-2 REGISTRY
CN Molybdate(3-), tetracosamu-oxododecaoxo[.mu.12-{phosphato(3-)-

CRN (12379-13-4)



● 3 H⁺

1279 REFERENCES IN FILE CA (1967 TO DATE)
 99 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 1283 REFERENCES IN FILE CAPLUS (1967 TO DATE)
 38 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L2 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2002 ACS
 RN 11104-88-4 REGISTRY
 CN Molybdenum phosphorus hydroxide oxide (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Molybdophosphoric acid
 CN **Phosphomolybdic acid**
 CN Phosphoric acid, anhydride with molybdic acid
 DR 12351-35-8, 12778-14-2, 61506-74-9
 MF H O . Mo . O . P
 CI COM, TIS
 LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAPLUS,
 CASREACT, CEN, CHEMCATS, CHEMLIST, CIN, EMBASE, ENCOMPLIT, ENCOMPLIT2,
 ENCOMPAT, ENCOMPAT2, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*,
 MSDS-OHS,
 NIOSHTIC, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)

| Component | Ratio | Component Registry Number |
|-----------|-------|------------------------------|
| O | x | 17778-80-2 |
| HO | x | 14280-30-9 |
| P | x | 7723-14-0 |
| Mo | x | 7439-98-7 |

729 REFERENCES IN FILE CA (1967 TO DATE)
 63 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 731 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> logoff hold

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

17.74

17.95

SESSION WILL BE HELD FOR 60 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 06:42:39 ON 12 SEP 2002